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UNITED STATES DEPARTMENT OF AGRICULTURE
Rural Electrification Administration
Technical Standards Committee "A"

Supplement No. 2, January 1987, to
REA Bulletin 43-5, List of
Materials Acceptable for Use on
Systems of REA Electrification Borrowers

The attached pages for the "List of Materials Acceptable for Use on Systems of REA Electrification Borrowers" are those which have been revised by action of the Technical Standards Committees during the months of October through December 1986. The following changes should be made in order to keep it up to date. Pages with a comma between are on the same sheet, both being changed.

Add <u>New Page</u>	Remove <u>Page</u>
1(1.1) Cond.	1(1.1) Cond.
p(1) Cond.	p(1) Cond.
an(1.1) Cond.	an(1.1) Cond.
an(1.2) Cond.	----
be-1	be-1
be(1) Cond.	be(1) Cond.
ej	ej
sb(1) Cond.	sb(1) Cond.
sd	sd
se	se
U an-1.1	U an-1.1
U hv-1	U hv-1
U hv-2	U hv-2
----	U hv-5
----	U hv(1) Cond.
U si-1	U si-1
U si-2	U si-2

ORIGINAL RECORDS

APR 20 '87

RECEIVED
FEBRUARY

1 - Clamp, deadend

DISTRIBUTION

2-Bolt Straight Line, Aluminum Alloy

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>*C & R Products</u>		
Catalog No. CRDE-10-180	918 (5/15/69)	(a) To obtain experience.
(No. 4 thru No. 2/0 ACSR)	1331 (11/20/86)	(b) Applications limited
Catalog No. CRDE-20-180		to replacements under
(No. 3/0 and No. 4/0 ACSR)		hot line conditions.
<u>*Fargo</u>		
Aluminum alloy deadend	1258 (5/5/83)	Same as above.
Catalog No. GD-961A		
side opening keeper	1144 (8/3/78)	
(No. 4 and No. 2 ACSR)		
Catalog No. GD-972A	791 (4/30/64)	
(2/0, 3/0, 4/0 ACSR)		

*Straight line deadend clamps are applicable for urban construction where tensions are moderate and on lines often worked hot.

m-1
July 1986

m - Clamp, suspension

2 BOLT - DISTRIBUTION

	<u>Copper & CWC</u>	<u>ACSR with 4</u>	<u>Straight or 2</u>	<u>Formed 1/0 & 2/0</u>	<u>Armor Rods 3/0 & 4/0</u>
American Connector	FLS-53	ALS-62	ALS-62	ALS-86	ALS-105
Anderson/Square D	MS-46-N	MS-60-N	MS-70-N	HAS-85-N	HAS-104-N
Barron Bethea	FWG-1	FWG-2	FWG-3	FWG-4	-
Bethea Electrical	FS-46-N	GW-1-N	LS-0-N	LS-1-N	LS-2-N
Brown Boveri Elec.	6240	6241	6242	6243	6244
C & R Products	-	-	-	CRSC-1	CRSC-2
Continental Electric	FSC-46-N	FSC-60-N	SC-70-N	SC-85-N	SC-105-N
Dulmison	-	-	-	-	AGS*
Joslyn (Brewer Titchener)	6240	6241	6242	6243	6244
Lapp	305740N	306027N	306028N	306029N	306030N
Ohio Brass	83044	83064	83074	83084	83104
Preformed	-	-	-	-	AGS*

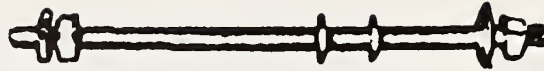
*Accepted for larger sizes.

p - Connectors

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Anderson/Square D</u> Compression al to al al to cu "Versa-Crimp" L tap.	748 11/1/62	To obtain experience
Parallel groove, aluminum LC-52C (1/0 - 6/1 ACSR over armor rods) LC-51C (1/0 - 6/1 ACSR)	738 6/21/62	" " "
<u>Burndy</u> Compression, insulated "Insulink"	672 8/6/59	" " "
<u>Blackburn</u> Compression, insulated service entrance con- nectors, Types ICS-1 and IKL	1027 10/11/73 1133 2/16/78	" " "
Bolted, insulated IPC 1102 (#2-1/0 run, #2 tap) IPC 4111 (1/0-4/0 run, #2-1/0 tap) IPC 4141 (1/0-4/0 run, 1/0-4/0 tap)	1327 9/11/86 1330 10/30/86	1. For use on 600 volt maximum insulated conductors. 2. To be used only for connecting service drop conductors to service entrance conductors. 3. To obtain experience.
<u>Homac</u> Compression, Insulated "Shure Splicers" Types Q1N and U1N	1074 9/25/75 1269 11/17/83	" " "

q
July 1986

q - bolt, double upset



Applicable Specification: "REA Specifications for Single and Double Upset Spool Bolts," D-5

Diameter, inches	<u>5/8</u>	<u>5/8</u>	<u>5/8</u>	<u>5/8</u>
Length, inches	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>
Chance	-	7826	7828	7830
Dixie	D7824	D7826	D7828	D7830
Joslyn	-	J2394	J2395	J2396
Kortick	K4760	K4761	K4762	K4763
McGraw-Edison*		DC3E11	DC3E12	DC3E13
Utilities Service	31065	31067	31069	31071

*Static proof" designs available.

an - Transformers, Power
Three-Phase, Step-Down
For Distribution Substation Use

Primary Voltage-kV	kVA						MVA							
	750	1000	1500	2000	2500	3750	5	7.5	10	12	15	20	25	30
<u>McGraw-Edison</u>														
34.4														
43.8														
67.0														
115														
138														

Transformers 5 MVA and larger also accepted as load tap changing transformers using McGraw-Edison
Types 550, 550B, and 550C load tap changers.

<u>ASEA Electric</u>															
34.4							X	X	X	X	X				
43.8															
67.0					X		X	X	X	X	X	X	X	X	X
115							X	X	X	X	X	X	X	X	X
138							X	X	X	X			X		

Transformers 5 MVA also accepted as load tap changing transformers using ASEA Electric Type UZD load tap changers.

<u>Westinghouse</u>															
34.4		X	X	X	X	X	X	X	X					X	
43.8		X	X	X	X	X	X	X	X	X	X				
67.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
115															
138															

Transformers 5 MVA and larger also accepted as load tap changing transformers using Westinghouse
Types UTS-A, UTT-B and UUV load tap changers.

Conditional List
an(1.1)
January 1987

an - Transformers, Distribution, Pole Type

<u>Manfuacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Dowzer</u> 14.4/24.9 kV and Dual Voltage	824 9/19/65	To obtain experience.
Conventional, single bushing Type CR	1011 3/1/73	
Self-protected, single bushing Type CSP-R		
Conventional, two bushing Type CD		
<u>General Electric</u> 7.2/12.5, 7.62/13.2, 14.4/24.9 kV and Dual Voltage		
Single-phase, single bushing, and two bushing with internal Tranquell Under-oil Arrester	1316 3/6/86	To obtain experience.
Single-phase, single bushing and two bushing, 25 and 50 kVA pole type distribution transformers with amorphous metal cores	1320 5/8/86	To obtain experience.
<u>Tarrant</u> 7.2/12.5 kV and 7.62/13.2 kV	791 4/30/64	To obtain experience.
Conventional, single bushing Type CB-1		
Conventional, two bushing Type CB-2		
Self-protected, single bushing Type SG-1		
May also be obtained with lightning arrester and internal fuse. Types PSG-1 and PSG-2.		

an - Transformers, Distribution, Pole Type

<u>Manfuacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>VanTran</u> 14.4/24.9 kV and Dual Voltage	1075 10/16/75	To obtain experience.
Conventional, single bushing Type CR		
Conventional, two bushing Type CD	1095 8/11/76	
Self-protected, single bushing Type CSP-R		
<u>Westinghouse</u> 7.2/12.5, 7.62/13.2	1333 12/18/86	To obtain experience.
Single-phase, single bushing, 25 kVA pole type distribution transformers with amorphous metal cores.		

bb
July 1986

bb - Brace, sidearm vertical

	<u>26" brace 24" bolt-hole spacing</u>	<u>50" brace 24" bolt-hole spacing</u>
Dixie	D6986	D6987
Joslyn	J1536	J1537
Kortick	K1931	K1932
McGraw-Edison	DB1V1	DB1V3
Utilities Service	5249	5250

Conditional List
be(1)
January 1987

be - Recloser, oil circuit
12.5/7.2 kV

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>*Lexington Switch and Controls</u>		To obtain operating experience.
Three phase oil circuit recloser, 50, 100 and 280 ampere frames,	808 (1/7/65)	
A Line, Model 3B (5-5- Amperes)	1087 (4/1/76)	
Model 3D (5-100 Amperes)	1329 (10/9/86)	
Model 3K (25-28 Amperes)		

*Westinghouse

Three phase oil circuit recloser (Shunt trip with static or relay type controls)		To obtain operating experience.
Type ES-400 (15-400 amperes)	1070 (7/24/75)	
Type ES-560 (15-560 amperes)		
Type ESM-560 (100-560 amperes)		
Type ES-105 (15-560 amperes)	1077 (11/13/75)	

24.9/14.4 kV

<u>*Lexington Switch and Controls</u>		To obtain operating experience.
Oil circuit recloser,	620 (4/18/57)	
Single phase-A Line, Model M rated 100 amperes	1080 (12/23/75)	
Three phase-A Line, Model 3M rated 100 amperes	1329 (10/9/86)	

*Ratings greater than 100 amp. for 12.5/7.2 kV application, and greater than 200 amp for 24.9/14.4 kV application, are acceptable only with ground trip devices.

be - Reclosers, Vacuum interrupter
12.5/7.2 kV

McGraw-Edison

*#Three phase - Type VSA, ratings
100 - 560 amperes

* Ratings greater than 100 amp. for 12.5/7.2 application, and greater than 200 amp. for 24.9/14.4 kV application, are acceptable only with ground trip devices.

#Not acceptable with load current, bushing CT battery chargers.

be - Recloser, oil circuit
12.5/7.2 kV

Lexington
Switch and
Controls

Single phase - A Line, Model B, ratings 5-50 amperes,
maximum interrupting capacity 1250 amperes.
Single phase - A Line, Model D, ratings 25-100 amperes,
maximum interrupting capacity 2000 amperes.
Single phase - A Line, Model K, ratings 25-100 amperes,
maximum interrupting capacity 4000 amperes.

McGraw-Edison

Single phase - Type H, ratings 5-50 amperes, maximum
interrupting capacity 1250 amperes.
Single phase - Type 4H, ratings 5-100 amperes, maximum
interrupting capacity 2500 amperes.
Single Phase - Type L, ratings 25-100 amperes, maximum
interrupting capacity 2500 amperes.
Three phase - Type 6H, ratings 5-100 amperes, maximum
interrupting capacity 2500 amperes.
*Three phase - Type RX, ratings 25-400 amperes, maximum
interrupting capacity 6000 amperes.
*Three phase - Type W, ratings 100-560 amperes,
maximum interrupting capacity 10,000 amperes.
*#Three phase - Type RXE, rating 400 amperes, maximum
interrupting capacity 6000 amperes.
*#Three phase - WE, rating 560 amperes, maximum
interrupting capacity 10,000 amperes.
*#Three phase -ME, ratings 560 or 1120 amperes,
maximum interrupting capacity 16,000 amperes.

24.9/14.4 kV

McGraw-Edison

Single phase - Type E, rating 5-100 amperes, maximum
interrupting capacity 2500 amperes. Available with
shunt lockout solenoid for three-phase operation.
*#Three phase - Type RVE, rating 400 amperes, maximum
interrupting capacity 6000 amperes.
*Three phase - Type WV, ratings 560 amperes, maximum
interrupting capacity 8000 amperes.
*#Three phase - type WVE, rating 560 amperes, maximum
interrupting capacity 8000 amperes.
*Single phase - Type 4E, rating 50-280 amperes, maximum
interrupting capacity 4000 amperes.
*#Three phase - Type CXE, rating 560 amperes, maximum
interrupting capacity 16,000 amperes, maximum voltage 34.5 kV

* Ratings greater than 100 amp. for 12.5/7.2 kV application, and greater than 200 amp. for 24.9/14.4 kV application, are acceptable only with ground trip device.

Not acceptable with load current, bushing Ct battery chargers.

ej - Clamps, deadend with socket eye

ACSR

AWG	266.8	336.4	477	556.5	795	954
2/0 to 4/0						

Iron or Steel Clamps (require armor tape or liner)

Joslyn (Brewer-Titchener)
Ohio Brass

5001
80440

5002
80445

5002
80445

5003
80450

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Aluminum Alloy Clamps (do not require armor tape or liner)

Anderson/Square D
Betha Electrical
C & R

SD-57-S
ADE-21-S
CR-10-60S

SD-70-S
ADE-22-S
CR-20-60S

SD-86-S
ADE-23-S
CR-20-60S

SD-86-S
ADE-24-S
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SD-98S
ADE-24-S
ADE-2526-S

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Joslyn (Brewer Titchener)
Lapp
Ohio Brass

5200
305757S
86536

5201
305758S
86540

5202
305759S
86546

5203
305760S
86546

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NOTE: When used with clevis-type insulators for large conductors on distribution lines, order clamp with clevis eye.

ek
July 1986

ek - Locknuts

For Bolt Diam., in.:	3/8	1/2	5/8	3/4	7/8
	<u>MF Type</u>				
Chance	3510	3511	3512	3513	3514
Dixie	D3510	D3511	D3512	D3513	--
Hughes Brothers	MF30	MF50	MF60	MF70	--
Joslyn	J8581	J8582	J8583	J8584	J8584-1/2
Kortick	K1065	K1066	K1067	K1068	--
McGraw-Edison	DF3N1	DF3N2	DF3N4	DF3N6	DF3N8
Power Line Hardware	SLN38	SLN50	SLN58	SLN34	SLN78
Utilities Service	4920	4921	4922	4923	4924

sb - Switch, disconnect (single-pole, hook operated
distribution class)*

For distribution line use where power class insulation is not required and
single-phase switching is permissible.

(Not suitable for substation use)

<u>Manufacturer</u>	<u>Type</u>	<u>Voltage Rating</u>	<u>System Voltage Line-to-Line</u>
Chance	M3(PL)	15 and 27 kV	12.5 thru 24.9 kV
G & W Electric Company	EV(PL)	15 kV	12.5 kV
Kearney	D-73(PL)	15 and 25 kV	12.5, 13.2, 24.9 kV
McGraw-Edison	D2(PL)	15 and 25 kV	12.5, 13.2, 24.9 kV
Morgan	DHS (PL)	15 and 23 kV	12.5, 13.2, 24.9 kV
ITT Royal	BLT(PL)	15 and 23 kV	12.5, 13.2, 24.9 kV
S & C	LBD (PL)	15 and 25 kV	12.5, 13.2, 24.9 kV
Siemens-Allis	HD(PL)	15 and 25 kV	12.5 thru 24.9 kV

NOTE: Switches on this page must be furnished with four bolts for double
crossarm mounting.

(L) Means solid material load interrupters are available and accepted.

(PL) Means hooks for portable load interrupters are available.

(LV) Means vacuum interrupters are available and accepted.

*Steel bases only.

Conditional List
sb(1)
January 1987

sb - Switch, hookstick
(line tension switches)

for use on 12.5/7.2 kV systems only

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Blackburn</u> IL6B-H	1332 (12/4/86)	To obtain experience.
<u>Bridges</u> 125	1279 (5/3/84)	To obtain experience.
<u>Chance</u> LTD06150-H	1279 (5/3/84)	To obtain experience.

NOTE: All switches listed on this page have hooks for portable load interrupters.

Conditional List

SC

July 1986

sc - Regulators, Voltage

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Siemens-Allis</u> Three-phase, step-type substation regulator Type SFR (13.2/7.62 kV)	657 (11/24/58)	To obtain experience.
<u>General Electric</u> Three-phase, step-type substation regulator Type TMLT-32 (13.2/7.62 kV)	723 (9/28/61)	To obtain experience.

sd
January 1987

sd - Current Transformers
Outdoor Type

<u>Manufacturer</u>	<u>.6 kV</u>	<u>15 kV</u>	<u>25 kV</u>	<u>34.5 kV</u>	<u>69 kV</u>
Andover	DCBW DCCW DCAB				
Associated Engineering	GT HA WEO	BB-15 LG-15	BB-25 LG-25 COF	LG-34.5 COF	COF-350
Astra	AA TFW AB AD				
Electromagnetic Industries (Square D)		CO3-110	CO3-150	CO3-200	1K-350
General Electric	JCR-0 JCW-0 JAK-0 JAD-0	JKW-5 JCK-5	JKW-6 JKW-150 KG-150	JKW-7 JKW-200 KG-200	JKW-350 KG-350
Sangamo	R6S R6SA R6M				
Westinghouse	CSF/CMS CMF CLC/CLE	KOR-11 KON-11	ACT-150 KOR-15	ACT-200	ACT-350

NOTE: The transformer types listed above are accepted in all standard ratios. Insulation class, voltages, ratios and other necessary information should be specified when ordering.

sd - Current Transformers
Outdoor Types

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Electromagnetic Ind. (Square D)</u>		
Type UMCT, 0.6 kV	971(7/15/71)	To obtain experience.
Type UCT, 0.6 kV		
Type IK 4-350-69, 69 kV (cycloaliphatic resin bushings)	1325 (8/14/86)	
<u>Balteau Standard</u>		
Type KEWO-110, 15 kV	1212 (5/21/81)	To obtain experience.
Type KEWO-150, 25 kV		
Type KEWO-200, 34.5 kV		
Type KEWO-350, 69 kV		

se
January 1987

se - Voltage Transformers

<u>Manufacturer</u>	<u>Outdoor Types</u>				
	<u>.6 kV</u>	<u>15 kV</u>	<u>25 kV</u>	<u>34.5 kV</u>	<u>69 kV</u>
Andover	DVE-6 DVF-6				
Associated Engineering	CL TL	PTT-150 SPOF-100 PTT-110	PTT-150 SPOF-150	POF-200	POF-350
Electromagnetic Industries (Square D)		PO5-110	PO5-150	PO5-200	U3-350-69
General Electric	JVA-0 JVP-0	JVW-5 JVW-110	JVW-6 ET-150 JVT-150	JVW-7 ET-200 JVT-200	ET-350 JVT-350
Sangamo	T6A T7				
Westinghouse	PPM	VOG-11 VOZ-11	PTOM-150 APT-150	APT-200	APT-350 LPT-350

NOTE: The transformer types listed above are acceptable in all standard ratios. Insulation class, voltages, ratios and other necessary information should be specified when ordering.

U an - Transformers, distribution
pad-mounted, dead-front

(For underground application)

Applicable Specifications: "REA Specifications for Pad-Mounted
Transformers," U-5.

<u>Manufacturer</u>	<u>Single Phase</u>	<u>Three-Phase</u>
Central Moloney (2, 4)	"REA-LP" 25-167 kVA	
Dowzer (3, 4)	"METRI-PAD" 25-167	"PM3W-R" 75-500 KVA
ERMCO (2, 4)	"Low-Profile" 10-167 kVA	
General Electric (2, 4)	"Mini-Pad III - REA" 10-167 kVA	"Compad II - REA" 75-2500 kVA
Howard (2, 4)	"Hi Pad REA" 10-167 kVA	"Hi Pad 3 REA" 45-2500 kVA
Kuhlman (2, 4)	"Lo-Pak ELR" 25-167 kVA	"K-PAK-3 REA" 750-2500 KVA
McGraw-Edison (2, 4)	Series 20/20 REA 25-167 kVA	"REA Pad-Mount" 75-2500 kVA
NECO/Hammond (2)	HMM-R, 10-50 kVA SP-R, 75-167 kVA	TP-R, 45-1000 kVA
Pauwels-Chance(2,4)	"Turf-Hugger-R" 10-100 KVA	"Turf-hugger-R" 45-500 KVA
H. K. Porter (2, 4) (Delta-Star)	"Low Profile U 5-R" 25-167 kVA	"Porter U5-R3" 225-2500 kVA
RTE (2, 4)	"REA Shrubline" 15-167 kVA	"REA Terra-Tran" 45-2500 kVA
United (Ky, AEC)(2, 4)	"Pad-Mount" 15-75 kVA	

- (1) 7.2/12.5 and 7.6/13.2 kV
- (2) 7.2/12.5, 7.6/13.2 and 14.4/24.9 kV
- (3) 7.2/12.5 and 7.6/13.2 kV (conditional listing for 14.4/24.9 kV)
- (4) Dual Voltage - Same as for 14.4/24.9 kV, single phase
- (5) Three-phase listing applies to 7.2/12.5 and 7.6/13.2 kV only
- (6) 14.4/24.9 kV

U an-1.2
July 1986

U an - Transformers, Distribution,
Pad-Mounted, Dead-Front

(For Underground Application)

Applicable Specifications: REA Specifications for Pad-Mounted
Transformers - U5

<u>Manufacturer</u>	<u>Single Phase</u>	<u>Three-Phase</u>
VanTran (3, 4)	"Mini-Pad U5" 5-167 kVA	"VanTran III-U5" 30-2500 kVA
Wagner (Turbodyne(2, 4)	"Turfline II-R" 25-167 kVA	
Westinghouse 2, 4)	"Mini-Pak U-5" 25-167 kVA	Type MTR 75-1500 kVA "Plazapad-U5" 2000-2500 kVA

- (1) 7.2/12.5 and 7.6/13.2 kV
- (2) 7.2/12.5, 7.6/13.2 and 14.4/24.9 kV
- (3) 7.2/12.5 and 7.6/13.2 kV (conditional listing for 14.4/24.9 kV
- (4) Dual voltage - same as for 14.4/24.9 kV, single phase
- (5) Three-phase listing applies to 7.2/12.5 and 7.6/13.2 kV only

U hr - Secondary tap or splice cover, submersible

<u>Manufacturer</u>	<u>Type or Catalog No.</u>
Bishop	Splice-Wrap
Blackburn	Type WDBS (#2 through #4/0) Type DBS (250 KCMIL through 1000 KCMIL)
Connector Mfg. Co.	Utilug Sure Seal
Elastimold (ESNA)	Style 86
Electrical Spec. Prod.	TSC Series
Homac	FSS Series
Kearney	Aqua-Seal Kit
3M	PST Series 8400

Heat Shrink Tubing (with sealant throughout)

<u>Manufacturer</u>	<u>Type or Catalog No.</u>
AMP	Black heat-shrink tubing
Blackburn	HS cable sleeves
Electrical Spec. Prod.	HSH
Panduit	Heat shrink insulating cover
Raychem	WCS cable sleeves
Sigmaform Corporation	Sigmaform heat-shrinkable products

U hv-1
January 1987

U hv - Cable, Underground
15 kV Cable

Applicable Specification: REA Specification U-1
Conductor: Copper or Aluminum - #2 AWG through 1000 kcmil
Insulation: Crosslinked (XL) Polyethylene, Ethylene
Propylene Rubber (EPR), Crosslinked Polyethylene
with Tree-retardant additives (XL-TR), or High
Molecular Weight Polyethylene with Tree-retardant
additives (HMW-TR)
Neutral: Copper Concentric Neutral
Jacket (If Used): High Molecular Weight Polyethylene

<u>Manufacturer</u>	<u>Insulation(s)</u>	<u>Jacketed Cable Accepted*</u>	<u>Flat Strap Neutral Available</u>	<u>Stabilized Neutral Design**</u>
Cablec	XL, EPR, XL-TR, HMW-TR	Yes	Yes	R-LOK
Conductor Prod.	XL, XL-TR, HMW-TR	Yes	Yes	Ridg-lok
Hendrix	XL, EPR, XL-TR, HMW-TR	Yes	No	Neu-lok
Okonite	XL, EPR, XL-TR	Yes	Yes	
Pirelli	XL, EPR, XL-TR	Yes	Yes	STA-SERVE
Reynolds	XL, EPR, XL-TR, HMW-TR	Yes	Yes	Secure-Neutral
Rockbestos	XL-TR	No	No	
Rome	XL, EPR, XL-TR	No	Yes	Serve-Lock Counter Secure
Southwire Furukawa	XL, XL-TR	Yes	No	

*For grounding purposes insulated jacketed cables must be treated like overhead lines, i.e., at least four ground rods must be installed per mile in accordance with the NESC. (This does not include service grounds, etc., but does include equipment grounds.) Additional grounding may be necessary in soils with higher resistivity. In splices or tap connections, a good seal should be achieved to exclude moisture.

**Accepted design meeting the requirements of paragraph 7.5.2. of REA Specification U-1, for a minimum neutral with a maximum lay.

U hv - Cable, Underground
25 kV Cable

Applicable Specification: REA Specification U-1
Conductor: Copper or Aluminum - #1 AWG through 1000 kcmil
Insulation: Crosslinked (XL) Polyethylene, Ethylene
Propylene Rubber (EPR), Crosslinked Polyethylene
with Tree-retardant additives (XL-TR), or High
Molecular Weight Polyethylene with Tree-retardant
additives (HMW-TR)
Neutral: Copper Concentric Neutral
Jacket (If Used): High Molecular Weight Polyethylene

<u>Manufacturer</u>	<u>Insulation(s)</u>	<u>Jacketed Cable Accepted*</u>	<u>Flat Strap Neutral Available</u>	<u>Stabilized Neutral Design**</u>
Anaconda Power Cable	XL	No	No	
Cablec	XL, EPR, XL-TR, HMW-TR	Yes	Yes	R-LOK
Conductor Prod.	XL, XL-TR, HMW-TR	Yes	Yes	Ridg-lok
Hendrix	XL, EPR, XL-TR, HMW-TR	Yes	No	Neu-lok
Okonite	XL, EPR, XL-TR	Yes	Yes	
Pirelli	XL, EPR, XL-TR	Yes	Yes	STA-SERVE
Reynolds	XL, EPR, XL-TR, HMW-TR	Yes	Yes	Secure-Neutral
Rockbestos	XL-TR	No	No	
Rome	XL, EPR, XL-TR	No	Yes	Serve-Lock Counter Secure
Southwire Furukawa	XL, XL-TR	Yes	No	

*For grounding purposes insulated jacketed cables must be treated like overhead lines, i.e., at least four ground rods must be installed per mile in accordance with the NESC. (This does not include service grounds, etc., but does include equipment grounds.) Additional grounding may be necessary in soils with higher resistivity. In splices or tap connections, a good seal should be achieved to exclude moisture.

**Accepted design meeting the requirements of paragraph 7.5.2. of REA Specification U-1, for a minimum neutral with a maximum lay.

U hv-3
July 1986

U hv - Cable, Underground

600 Volt Cable

Applicable Specification: REA Specification U-2
Conductor : Copper, #4 AWG and larger
Aluminum, #2 AWG and larger
Insulation : Cross-Linked polyethylene (XLPE)

<u>Manufacturer</u>	<u>Type Conductor</u>
Alcan	Copper or Aluminum
Anaconda Power Cable	Copper or Aluminum
Cablec	Copper or Aluminum
Collyer	Copper or Aluminum
Conductor Products	Aluminum
Essex	Copper or Aluminum
General Electric	Copper or Aluminum
Hatfield	Copper
Kaiser	Aluminum
Okonite	Copper or Aluminum
Phelps Dodge	Copper or Aluminum
Phillips Cables, Inc. (Marked "Phillips W")	Copper or Aluminum
Pirelli	Copper or Aluminum
Reynolds	Copper or Aluminum
Rome Cable	Copper or Aluminum
Southwire	Copper or Aluminum

NOTE: The manufacturers shown above have indicated that their 600 volt cable is suitable for use on 480 volt corner grounded delta circuits.

The above cable may be supplied with UL label for Type USE.

U hv - Cable, Underground

600 Volt Multi-Conductor Cable

Applicable Specification: REA Specification U-2
Conductor : Copper, #4 AWG and larger
Aluminum, #2 AWG and larger
Insulation : Cross-Linked polyethylene (XLPE)
Cable Configuration : 3 Insulated Conductors Triplexed

<u>Manufacturer</u>	<u>Type Conductor</u>
Alcan	Copper or Aluminum
Anaconda Power Cable	Copper or Aluminum
Cablec	Copper or Aluminum
Conductor Products	Aluminum
Essex	Copper or Aluminum
General Electric	Copper or Aluminum
Hatfield	Copper
Kaiser	Aluminum
Okonite	Copper or Aluminum
Phillips Cables, Inc. (Marked "Phillips W")	Copper or Aluminum
Pirelli	Copper or Aluminum
Reynolds	Copper or Aluminum
Rome Cable	Copper or Aluminum
Southwire	Copper or Aluminum

The above cable may be supplied with UL label for Type USE.

U hw
July 1986

U hw - Warning sign

Applicable Specifications: REA Drawings UM12-1 and UM12-2

<u>Manufacturer</u>	<u>Size (inches)</u>	<u>Danger Sign Catalog No.</u>	<u>Caution Sign Catalog No.</u>
Brady*	7 x 10	46133	46043
	10 x 14	46131	46041
Dun-Lap*	7 x 10	DL-D710	DL-C710
	10 x 14	DL-D1014	DL-C1014
	14 x 20	DL-D1420	DL-C1420
	20 x 28	DL-D2028	DL-C2028
Eastern Metal*	7 x 10	REA 12-1-710	REA 12-2-710
	10 x 14	REA 12-1-1014	REA 12-2-1014
	14 x 20	REA 12-1-1420	REA 12-2-1420
	20 x 28	REA 12-1-2028	REA 12-2-2028
Lyle*	7 x 10	UM12-1-710	UM12-2-710
	10 x 14	UM12-1-1014	UM12-2-1014
	14 x 20	UM12-1-1420	UM12-2-1420
	20 x 28	UM12-1-2028	UM12-2-2028
May Advertising	7 x 10	MY710C	MY710B
	10 x 14	MY1014C	MY1014B
	14 x 20	MY1420C	MY1420B
	20 x 28	MY2028C	MY2028B

For pressure sensitive decal add "D" prefix to catalog number.

Truck Sign Service*	7 x 10	TSD-710	TSC-710
	10 x 14	TSD-1014	TSC-1014
	14 x 20	TSD-1420	TSC-1420
	20 x 28	TSD-2028	TSC-2028
Lem	7 x 10	LSS-1400	LSS-1500
	10 x 14	LSS-1401	LSS-1501
	14 x 20	LSS-1402	LSS-1502

*Reflective signs also available.

The signs listed on this page are to be secured to equipment and transformer enclosures by means of an adhesive or by welding. Screws and rivets are not to be used.

U sd
July 1986

U sd - Current Transformers
600 Volt

Direct Burial Type

Manufacturer

Type or Catalog No.

General Electric

JAL-O

Indoor Type for Pad-Mounted Transformers

Manufacturer

Type or Catalog No.

Astra

AP

General Electric

JAB-O

Westinghouse

CMV

U si-1
January 1987

U si - Anodes, Sacrificial
(Drawings UM11-1, UM26, UM27, M2-7, M2-17)

Zinc Anodes*

	<u>Pre-packaged With Connecting Wire</u>			<u>Bare Continuous Strip (Ribbon)</u>	
	<u>12 lbs.</u>	<u>30 lbs.</u>	<u>60 lbs.</u>	<u>5/8" x 7/8"</u>	<u>1/2" x 9/16"</u>
Federated Metals	S-12 packaged	S-30 packaged	S-60 packaged	Regular Size Type II	Junior size
General Cathodic Protection Service	12HII-4A	30HII-4A	60HII-4A		
Harco	AZC12GJ	AZC30GJ	AZC60HJ		
Mesa	S-12 packaged	S-30 packaged	S-60 packaged	Regular Size	Junior size
Stuart	SZ-12 -----VIBROX packaged-----	SZ-30	SZ-60		

*When ordering, specify zinc anodes that meet ASTM B418-73 Type II Composition and REA Specification DT-9, "REA Specification for Zinc Sacrificial Anodes."

U si - Anodes, Sacrificial
(Drawings UM11-1, UM26, UM27, M2-7, M2-17)

Magnesium Anodes**

		<u>Standard Potential</u>				<u>High Potential</u>			
		<u>17 lbs</u>	<u>20 lbs</u>	<u>32 lbs</u>	<u>50 lbs</u>	<u>17 lbs</u>	<u>20 lbs</u>	<u>32 lbs</u>	<u>48 lbs</u>
Federated Metals	17 packaged			32 packaged	50 packaged				
General Cathodic Protection Services	17 packaged			32 packaged	50 packaged	17D3 packaged	20D2 packaged	32D5 packaged	48D5 packaged
Harco	AMC17J	AMC20J	AMC32J	AMC50J	AMC17G	AMC20G	AMC32G	AMC48G	
Kaiser Mag.	17 Vibra Pak		32 Vibra Pak	50 Vibra Pak	17 Electromag Vibra Pak		32 Electromag Vibra Pak	50 Electromag Vibra Pak	
Mesa	17 packaged		32 packaged	50 packaged	17D Series	20D2	32D Series	48D5	
Stuart	SM-17		SM-32	SM-50	SM-17H		SM-32H	SM-48H	

**When ordering, specify magnesium anodes that meet REA Specification DT-10, "REA Specification for Magnesium Sacrificial Anodes."

